AGRICULTURAL NEWS LETTER

VOL. 14 - NO. 6 NOVEMBER-DECEMBER, 1946

This publication contains information regarding new developments of interest to agriculture based on laboratory and field investigations of the du Pont Company and its subsidiary companies. It also contains published reports and direct contributions of investigators of agricultural experiment stations and other institutions as related to the Company's products and other subjects of agricultural interest.

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ISSUED BY PUBLIC RELATIONS DEPARTMENT, E. I. DU PONT DE NEMOURS & CO. (INC.), WILMINGTON 98, DEL.

Vol. 14 - No. 6 November-December, 1946

AGRICULTURAL NEWS LETTER

Published by the Extension Division
Public Relations Department
E. I. du Pont de Nemours & Company (Inc.)

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TOMATO PLANTS PULLED IN GEORGIA IN AFTERNOON FLOWN NORTH AND REPLANTED IN PENNSYLVANIA EARLY NEXT MORNING

Officials of D. E. Winebrenner Company, canners of Hanover, Pa., who flew 715,000 tomato plants in three shipments from Georgia last May, predict that "before long all food processors will receive their plants from the South by air." They report that the plants, which were flown from Georgia overnight, "were the nicest and freshest" ever received.

Constant Temperature Maintained In Plane

The first lot of 200,000 plants were pulled late on the afternoon of May 5, packed in burlap bags, and placed in the heat-controlled compartment of a DC3 twin-engined freight plane. A constant temperature of 50 degrees was maintained enroute.

The plane left Tifton, Ga., at 6:30 p.m., and arrived in Baltimore about four hours later. The plants arrived in Hanover by truck an hour or so after midnight. At 7 a.m. they were being set in the fields around Hanover, approximately 12½ hours after leaving Georgia. The old system of truck transportation required at least 40 hours on the road.

Two more air shipments from Tifton--255,000 plants on May 11 and 260,000 on May 13 -- proved to be as satisfactory as the original shipment, according to James B. Winebrenner, the company's farms manager.

Eliminates Weather Hazard

Use of airplanes eliminates much of the weather hazard. With only a few hours elapsing between the time the plants are pulled and replanted, it is possible to arrange for them to be received at a time when the weather is almost certain to be satisfactory for planting.

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N. J. STATION FINDS NEW IMPROVED "CERESAN" DUST GOOD TOMATO-SEED FUNGICIDE

New Improved "Ceresan" seed disinfectant, one of Du Pont's older agricultural chemicals, has been found to be a highly satisfactory tomato-seed fungicide when used as a dust as well as when mixed with water, the common practice heretofore for treating approximately 80,000 pounds of seed in New Jersey annually.

This material proved to be the best of 37 dusts tested by the New Jersey Agricultural Experiment Station, according to Dr. W. H. Martin in "New Jersey Farm and Garden," July, 1946. By this procedure, a preliminary report of which was made by Dr. B. H. Davis and Dr. C. M. Haenseler of the New Jersey Station in "Phytopathology," September, 1944, a dosage of 0.5 per cent by weight is used. The seed is agitated by hand for five minutes or by a dusting machine. In agar-plate tests conducted by Davis and Haenseler, New Improved "Ceresan" dust has consistently given 98 to 100 per cent clean seed, thus meeting Georgia plant-certification requirements.

Growers in New Jersey, Pennsylvania, New York, and other Northern tomato-growing states, have for many years used New Improved "Ceresan," mixed with water, to treat the thousands of pounds of seed shipped to Georgia annually for planting. The young plants, which get their start on Georgia farms under especially favorable early-spring growing conditions, are shipped by special express, fast truck, or more recently by airplane, for immediate re-setting in the Northern commercial vegetable-growing sections as soon as outdoor growing conditions there permit.

"For several years we have been working on a method of treating tomato seed that would eliminate the laborious dip method which involves dipping, centrifuging and drying the seed after it is dipped," Dean Martin reports.

As Much Seed Can Be Dusted In Hour As Can Be Dipped and Dried in Day

"After testing some 37 materials we found that ethyl mercury phosphate (New Improved 'Ceresan') gives good control in dust form," Dr. Martin says. "Using this method, seedsmen can machine-dust as much seed in an hour as they can treat by the liquid method in a day."

The New Jersey scientist points out that last fall nearly 20,000 pounds of New Jersey certified tomato seed were dusted, and "samples more than met the rigid requirements of the Georgia Department of Entomology for the production of Georgia-certified plants."

Continued on next page

Approximately 15,000,000 Certified Plants Produced from Dusted Seed

"Seedling stands were excellent in Georgia this spring, and New Jersey has received approximately 15,000,000 certified plants produced from dusted seed," he says.

Du Pont plant pathologists emphasize that tomato growers should obtain full information from their Experiment Station on the use of New Improved "Ceresan" as a seed disinfectant before using it either as a dust or as a liquid dip.

New Improved "Ceresan" Standard Seed Disinfectant for Grain Crops

New Improved "Ceresan," in addition to being an outstanding seed disinfectant for tomatoes, has long been the standard recommended product for use as a dust to control certain smut and other diseases of wheat, oats, barley, rye, sorghums, millets, and flax. It usually destroys surface seed-borne diseases of these grain crops either by direct contact with the spores (germs), or by forming a vapor which penetrates every crack and cranny of the seed. It also aids in protecting the seed against certain soil-borne organisms.

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CATTLE NO LONGER SPEND TIME IN POND -- GRAZE MORE, GAIN WEIGHT

Before they were sprayed with DDT insecticide, the herd of 38 Hereford steers of R. A. Compton, Faulkner County, Ark., farmer, spent most of their pasture time in the farm pond to protect themselves against flies.

"Naturally, while standing in the water, the cattle were unable to graze and did not gain weight as they should," says Mr. Compton. "We have found that the best way to get them to graze is to free them of flies. Before I sprayed my Herefords, they preferred the pond to the grass, and spent most of their time in the water. Within ten days after I used the DDT, they were no longer bothered by flies and went to the pond only to drink. The DDT gave excellent control of the flies. I used a spray made from 50 per cent DDT wettable powder, as recommended in Arkansas Extension Service Leaflet No. 74."

County Agent James H. Moore of Conway, Ark., cooperated in the demonstration.

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"ZERLATE" CONTROLS ANTHRACNOSE AND EARLY BLIGHT DISEASE OF TOMATOES

Zinc dimethyl dithiocarbamate, the active ingredient in Du Pont's new "Zerlate" fungicide, will do for the tomato crop what no other known fungicide -- not even its nearest kin, ferric dimethyl dithiocarbamate or "Fermate" fungicide -- can do. Both products will control the serious fungous disease known as anthracnose, but "Zerlate" will also control early blight disease which defoliates tomato plants.

This double-barreled action of the zinc compound was discovered in experiments in Delaware and Ohio. Discussing this important new development in plant-disease control, "Market Growers Journal," for June, 1946, explains:

"Anthracnose is a common disease known to most truck-crop or vegetable growers, and readily attacks tomatoes, as well as other crops. It is caused by a fungus called Colletotrichum phomoides, which lives over in the soil, and the first freed infections appear to come from this source.

Eliminated Need for Alternate "Fermate" and Fixed Copper Sprays

"Until only fairly recent years no satisfactory control for anthracnose was known, as the various copper fungicides only reduced infection by 40 to 50 per cent. Later it was shown that the organic fungicide, 'Fermate,' reduced infection 70 to 80 per cent, but it was also shown that 'Fermate' did not control early blight and its accompanying defoliation. It was then found that an alternating spray schedule of 'Fermate' for anthracnose and a fixed copper for early blight gave good control for both diseases."

Alternating Schedule Unnecessary

The article points out that now, with the use of zinc dimethyl dithiocarbamate, an alternating schedule is unnecessary, as even better control is obtained with this one spray. It adds:

"'Zerlate' will not, however, control late blight disease, and where this disease is a common problem, the alternating schedule should be followed."

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VETERINARIAN DISCUSSES USE OF X-RAY IN TREATING SMALL ANIMALS

X-ray pictures should be taken where foreign bodies within the thoracic or abdominal cavities are suspected, J. H. Krichel, D.V.M., of Keokuk, Iowa, said recently in discussing "Treatment of Small Animals in a Mixed Practice," before the Minnesota State Veterinary Medical Society and later before the Missouri Veterinary Medical Association.

"Urinary calculi may at times be found in this manner," he said. "Unless a fracture of the long bones is easily defined by careful manipulation, a radiograph is in order. Malignancies of the osseous structures, as well as arthritis, can be diagnosed by the use of x-ray."

Has Satisfactory Arrangement With Local Hospital

Dr. Krichel's paper, published in the "Journal of the American Veterinary Medical Association," Vol. CIX, No. 832, July, 1946, emphasizes the fact that while many general practitioners, like himself, do not possess x-ray equipment, "this should not deter a veterinarian from using radiographs as an aid in diagnosis where such are indicated."

He explains that he has had a satisfactory arrangement with a local hospital for 14 years, that the work is done by highly trained technicians, and that the service is prompt and the cost low.

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X-RAY CONFIRMS DIAGNOSIS OF ANIMAL AILMENTS

Since animals cannot tell about their aches and pains, x-ray apparatus is extremely valuable to the veterinarian in the diagnosis of livestock ailments. Outstanding progress in the use of x-ray has been made in recent years.

Farmers and other growers and owners of livestock are making increased demands on veterinary science for treatment of both small and large animals, because it pays. For instance, restoration of one thoroughbred horse to usefulness frequently more than pays the cost of x-ray equipment. X-ray has often been used to determine whether cattle have swallowed fence wire or similar harmful things.

Continued on next page

An illustrated booklet of valuable information, including a bibliography of 16 references, was recently published by the General Electric X-ray Corporation.* This pamphlet, called "X-ray and Electromedical Equipment for the Modern Veterinarian," tells what can be done with x-ray, x-ray accessories, and other electromedical equipment.

"In the small-animal hospital, x-ray has had particularly wide acceptance -- in fact, the small-animal hospital without x-ray is becoming a rarity," the booklet says. "And, x-ray is being put to rapidly expanding usefulness in diagnosis of ailments of larger animals. Especially is this true of breeders and trainers of thoroughbred horses."

X-ray is used not only to confirm diagnosis, but to discover incipient causes of lameness in these valuable animals. It has been the means of preserving the use of many horses that might otherwise have been incapacitated eventually, and for early diagnosis of ringbone and similar ailments. In many cases only x-ray can provide positive diagnosis. It is also used for treatment of malignancies.

Small Animals

Discussing small animals, the booklet points out that the use of x-ray for determination of the extent of injuries or presence of some abnormal state is not limited to any particular areas.

"Practically every portion of small animal structure can be delineated, some requiring the use of contrast mediums," it says. "Among the many conditions in which x-ray is used as the exploratory agent are:

> "Localization of foreign objects...Fractures...Progress of reduction...Calculi...Dental disorders...Diseases of the nose and sinuses...Diverticula...Hydrothorax...Tuberculosis...Exostoses... Rickets...Tumors and cancers...Gall-bladder and kidney disorders**...Stomach troubles**... Osteosarcoma...Determination of Pregnancy...Intussusception**...Sequestra...Arthritis... Periostitis...Osteomata...Sinuses and fistulae**...Osteomyelitis...Degenerative joint diseases...Fluoroscopic examination of cardiac action, diaphragmatic hernia, and peristalsis**.

Large Animals

The publication says that radiography of large animals is more difficult and, because of the size of the patient, more limited in scope,

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*A copy will be sent, upon request, to qualified veterinarians and others interested in the subject. Address General Electric X-Ray Corp., 175 W. Jackson Blvd., Chicago 4, Illinois.

**Contrast medium required

Continued on next page

especially with the type of x-ray apparatus often employed by veterinarians. It explains, however, that this is a remarkably fertile and profitable field, even with the small portable apparatus, because of the high value of large animals such as thoroughbred horses and prize cattle. It adds:

"With x-ray examination, the extent of fractures and of injuries of the extremities can be determined, as well as the presence of such conditions as:

"Navicular disease (with and without caries)...Bursitis... Ringbone...Sidebones...Pedal Ostitis...Sesamoiditis...Calcification...Exostoses...Ankylosis...Arthritis...Cartilageneous erosions...Osteophytosis...Periostosis...Bone spavin."

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SHEEP AND COWS GRAZED ON PASTURES TREATED WITH 2,4-D SHOW NO ILL EFFECTS

Three U.S. Department of Agriculture research scientists have come up with the good news that sheep and cows grazed on pastures treated with 2,4-D weed killer remained healthy and normal, and that the chemical did not affect the palatability of the grasses.

These men -- J. W. Mitchell, physiologist, and R. E. Hodgson, animal husbandman, assisted by C. F. Gaetjens, scientific aide -- report that -- during the 12 days the sheep grazed the treated pasture there was no indication that the grass was unpalatable. The sheep showed no ill effects from consuming the sprayed pasturage while they were on the treated area or at any time thereafter.

The cows grazed the treated pasturage closely for 48 days without any indication that it was unpalatable. They remained healthy throughout the test period. Post-mortem examinations showed no abnormal conditions attributable to the consumption of spray material on the pasturage.

The results of the tests, reported in "Journal of Animal Science," Vol. 5, No. 2, were undertaken, according to the authors, to obtain answers to two principal questions: the effect on sheep and cows maintained on pasturage that had been sprayed with a water mixture of 2,4-dichlorophenoxyacetic acid (2,4-D); and the effect of feeding a cow daily doses of 2,4-D. Tests were also made to determine whether 2,4-D or its salts were absorbed into the blood stream and excreted in the milk of a cow fed this new weed killer.

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Summary of Results of Tests

The report summarizes the results as follows: "Sheep and cows grazed pasturage treated with a liberal application of weed killer (2,4-dichlorophenoxyacetic acid and Carbowax mixture.) There was no apparent reduction in its palatability. The 2,4-D consumed either on pasture grass eaten by sheep and cows or in the ration fed to a cow at the rate of 5.5 grams daily, produced no apparent harmful effects in the health and performance of the animals. Post-mortem examinations revealed no pathological conditions in cows grazing on pasture treated with 2,4-D, nor was this material found to be present in the liver, kidney, or fatty tissues of a cow fed 2,4-D.

"By means of a biological method of assay, the presence of 2,4-D was demonstrated in the blood serum of a cow fed 5.5 grams of this material daily for 106 days. Results of these tests indicate that the 2,4-D probably occurred as a water-soluble salt.

"The 2,4-D was not found to be secreted into the milk, nor was it found in the blood serum of a calf fed milk from the cow that received it in her ration.

"It is concluded from these data that the amount of 2,4-D that might be consumed by cows or sheep from pasturage sprayed with this material to kill weeds would not be injurious."

The government scientists caution that their experiments are based on the use of purified 2,4-D together with Carbowax and, "while they indicate that the acid is not toxic, the results are not applicable to proprietary formulations that might contain other ingredients."

NOTE: A reprint of the complete paper reviewed above may be obtained by writing the U.S. Dept. of Agriculture Research Center, Beltsville, Md., attention of Dr. J. W. Mitchell, Bureau of Plant Industry, Soils, and Agricultural Engineering, or Dr. R. E. Hodgson, Bureau of Dairy Industry.

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COMMERCIAL FERTILIZERS INCREASE U. S. COTTON PRODUCTION NEARLY TWO AND A HALF MILLION BALES IN SINGLE YEAR

"In more than 150 experiments by the U. S. Dept. of Agriculture and State agricultural experiment stations on the principal soil types used for cotton production in seven states and covering a range of 18 years, the average increase of cotton due to fertilizers, used at rates of 200 to 600 pounds per acre, is approximately 1.6 bales per ton of fertilizers; that is, 40 pounds of lint per 100 pounds of fertilizer. Based on these results, cotton produced in 1943 by application of commercial fertilizer is estimated at approximately 2,491,000 bales."

Half of Cotton Produced by Fertilizers Due to Nitrogen

"A larger percentage of cotton produced by fertilizers is attributed to nitrogen than to phosphoric acid or potash. In general 50 to 55 per cent of the increase may be attributed to nitrogen, 15 to 20 per cent to phosphoric acid, and 25 to 30 per cent to potash."

"Approximately half of the nitrogen used on cotton is applied as a side-dressing after the cotton is up. (See table, page 114.)

Effects of Nitrogen, Phosphorus, and Potassium

"Without an adequate supply of available nitrogen, cotton plants fail to grow and produce well....An adequate supply of nitrogen produces rapid growth, dark foliage, and early setting of squares and bolls."

"One important effect of phosphate is to hasten the maturing and opening of cotton...Without sufficient available potash cotton plants show reduced vigor and are more susceptible to disease... Potash reduces loss of cotton from wilt...is effective in controlling rust of cotton...increases the percentage of oil in the cottonseed." -- Extracts from U.S.D.A. Circular 726, by Dr. J. J. Skinner.

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USE OF MORE FERTILIZER, BETTER APPLICATION WOULD RELEASE OVER 2½ MILLION ACRES WITHOUT DECREASING COTTON PRODUCTION

"An increase of 100 pounds an acre of improved fertilizers above the quantity used in general practice on approximately 10,000,000 acres in the fertilizer-using Cotton Belt should yield an estimated increase of 800,000 bales," according to Dr. J. J. Skinner in U.S. D.A. Circular 726. "The adoption of improved methods of applying fertilizers in the large fertilizer-using belt of the Southeastern States, which comprised 5,190,000 acres in 1943, should result in an estimated increased yield of 865,000 bales. By increasing fertilizer use accordingly, by adopting side-placement of fertilizers, and by using combined planter-and-fertilizer distributors, normal production can be maintained on fewer acres. It is estimated that between 2,500,000 and 3,000,000 acres could be released from cotton cultivation by increasing the fertilizer by 100 pounds per acre and by side-placement without a probable decrease in production." Based on these figures, about one-fourth of the land now planted to cotton in the United States could be released to other crops without the loss of a single bale of cotton from total production.

Side-placement should not be confused with side-dressing. Side-placement means the placement of the fertilizer (usually a complete mixture) in relation to the placement of seed at time of planting. Side-dressing means the application of the fertilizer (usually nitrogen only) after the cotton has come up. Use of leaching-resistant nitrogen sources in fertilizers in recent years has made late applications less essential for fertilizer efficiency than formerly, except on sandy soils, Dr. Skinner says.

BULLETIN SUMMARIZES INFORMATION ON FERTILIZATION OF COTTON

"Yields of cotton per acre determine in large measure the cost of production per pound and the profit in producing this, the principal cash crop of the South. In the southeastern and south-central sections of the Cotton Belt, the kinds and quantities of fertilizer used have a greater influence on yields and profit than any other factor."

These assertions are quoted from a concise and practical publication, Circular 726, "Use of Commercial Fertilizers in Cotton Production," by Dr. J. J. Skinner, senior biochemist, recently issued by the U. S. Department of Agriculture. This boiled-down presentation of pertinent facts about cotton fertilization says that other cultural means of maintaining

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soil fertility and producing profitable yields are concerned with increasing the acreage of legume cover crops, adopting proper rotations, and improving crop-management practices.

The circular discusses the nutrient requirements of cotton, the form and function of nitrogen, phosphorus, and potassium, as well as the secondary and minor plant-food elements such as zinc and boron, as fertilizer constituents; the efficient use of fertilizers; the economy of higher-analysis grades; statistics on tonnages of fertilizer used on cotton; and recommendations to increase acre yields.

Important Functions In Addition to Increasing Yields

"Information concerning the quantities and kinds of commercial fertilizers to be used is becoming increasingly important, for improved fertilizers efficiently used not only increase acre yields of cotton, but also increase the oil content of cottonseed, retard nutritional diseases of the cotton plant, and increase production of long-staple cotton, which is grown principally in that section of the Cotton Belt where commercial fertilizers are essential," the circular says.

"It is important, also, to evaluate the returns that are possible from the use of commercial fertilizers to increase the available nutrient content of the soil in large cotton-producing regions, and to determine means of increasing the use of these fertilizers. Knowledge of the symptoms caused by deficiencies of essential plant nutrients results in a better understanding of the fertilizer requirements for the profitable production of cotton in different soil regions."

Savings from Use of Higher-Analysis Fertilizers

The circular explains that use of higher-analysis fertilizer containing materials of low cost per unit of plant food reduces the cost of the plant food, conserves bags and other materials, and saves freight, handling, and farm-labor expense.

"The use and proper application of improved fertilizers on improved varieties of cotton, the growing of winter legumes more extensively, the rotation of cotton with other crops, including a summer legume, and the elimination of cotton from unsuitable areas make it possible to produce larger yields on fewer acres at reduced cost," it continues.

The government scientist, in explaining that fertilizers containing higher percentages of nitrogen, phosphoric acid, and potash than formerly used contribute to the efficiency of fertilizers for cotton, points out that yields are as great with high-analysis fertilizers such as 5-10-5 (5 per cent nitrogen, 10 per cent phosphoric acid, and 5 per cent potash) as with lower grades such as 4-8-4, when equivalent weights per acre of nitrogen, phosphoric acid, and potash are applied. The higher-analysis fertilizer can be formulated to contain less total salts for each unit

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of plant nutrients furnished than low-analysis fertilizer, and is less apt to have an unfavorable effect on germination and stand. Five hundred pounds of 4-8-8 fertilizer may contain more total salts than 400 pounds of 5-10-10, and likewise 300 pounds of 12-16-12 can be made to contain less potential plant-injury factors, in terms of total salts, than 600 pounds of 6-8-6.

Nitrogen and Dolomitic Limestone

Dr. Skinner explains that nitrate nitrogen is readily available, but is easily leached from the soil.

"This quality makes it effective when used as a side-dressing after cotton is up," he says. "The ammonia salts are readily available, but are not readily leached from the soil, a desirable quality for cotton fertilizers. They are acid-forming, but are suitable for use in mixed fertilizers when properly compounded with dolomitic limestone to make them non-acid-forming. When fertilizers are neutral or are used on limed soil there is little if any difference in the efficiency of different sources of nitrogen."

Emphasis is placed on the fact that since the relative efficiency of different forms of nitrogen does not vary widely when properly compounded, "the cost factor is important in selecting nitrogen for direct application or for use in mixed fertilizers for cotton."

"New and more concentrated nitrogen materials available for fertilizers have been developed in recent years," the circular continues. "Private and wartime Government plants have been manufacturing and releasing for agricultural use large quantities of this class of fertilizers."

Dr. Skinner names six nitrogen-fertilizer materials that are used extensively for cotton "with good results." He points out that the nitrogen content of these carriers varies all the way from 15 per cent to 42 per cent, as found in "Uramon" fertilizer compound. He says too that inclusion of dolomitic limestone in fertilizers containing acid-forming nitrogen salts makes them more effective, and lists the quantities of limestone required to neutralize 100 pounds each of the commonly used nitrogen materials.

In a large number of experiments on a wide range of soils over a long period, the average increased yields as a result of nitrogen applications at rates of 8 to 30 pounds of nitrogen per acre range from 13.5 to 15.5 pounds of seed cotton per pound of nitrogen, Dr. Skinner says. The yield increases when more nitrogen is applied, up to 48 pounds per acre. The extent of the increase is not so great above 32 pounds. A total of about 36 pounds of nitrogen per acre is profitable on most soils.

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ESTIMATED QUANTITY OF NITROGEN USED AND ESTIMATED RATE OF USE PER ACRE IN THE PRODUCTION OF COTTON, 1943 BASIS

Region and State	Tons			Pounds per Acre		
	In Mixed Fertilizer	Chiefly as Side-dressing	Total	In Mixed Fertilizer	Chiefly as Side-dressing	Total
Southeast						
Va.	291	97	388	18.5	5.9	24.4
N. Car.	5,486	4,490	9,976	14.0	11.6	25.6
S. Car.	7,803	6,919	14,722	14.6	13.0	27.6
Ga.	9,044	6,887	15,931	12.0	8.9	20.9
Fla.	313	201	514	9.0	5.8	14.8
Ala.	10,629	5,978	16,607	14.2	8.0	22.2
S. Central						
Tenn.	1,007	1,643	2,650	2.8	4.5	7.3
Miss.	5,167	12,058	17,225	3.5	8.2	11.7
La.	1,263	2,275	3,538	2.5	4.6	7.1
Ark.	2,063	4,595	6,658	2.0	4.5	6.5
Southwest						
Okla.	29	.....	29	.3	.....	.3
Texas	1,631	222	1,853	.35	.05	.4
Calif.	573	.....	573	3.2	.....	3.2
Total	45,299	45,365	90,664	.....	.....	.....

Phosphorus and Potassium

The circular gives data from experiments with phosphoric acid, which indicate that increased yields as the result of applying phosphorus to cotton are of less magnitude than those from nitrogen. A gradual but very small increase in yield results as larger applications are made. The average production resulting from an application of phosphoric acid at the rate of 16 pounds to the acre is approximately 4 pounds of seed cotton per pound of phosphoric acid. A pound of phosphoric acid produced approximately 2.5 pounds of seed cotton when applied at rates of 32 to 40 pounds per acre.

Based on an average response to potash, yields increase with increased rate of potash up to the 32-pound level. Production per pound of potash is approximately 8 pounds of seed cotton with applications of from 8 to 16 pounds of potash.

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LIFE OF COOLING SYSTEM IS LIFE OF CAR, TRACTOR, TRUCK

Automotive equipment on the American farm -- passenger cars, trucks, and tractors -- is getting old.

In fact, the wartime slogan "Care for Your Car for Your Country" is almost as apt today as it was during the months before V-J Day. Governmental agencies emphasize that American farmers will be called upon in 1947 to produce the largest peacetime agricultural output in the nation's history. And that requires help. Large numbers of automotive units will be needed to produce, harvest, and market the food, feed, fiber, and fats needed to meet the quotas.

Last year the Du Pont Company issued an illustrated booklet entitled "Take Care of Your Cooling System!", which warned that "Victory cannot create new automobiles overnight."

And victory didn't. Automobile output was less in 1946 than anticipated. More time is needed before production can catch up with demand. That means the old equipment must be given the best of care to last until it can be replaced. And, of course, new automotive equipment requires attention to keep it in first-class running order and to lengthen its useful life.

The Du Pont booklet tells, in easy-to-understand language, with explanatory diagrams, how to prevent cooling-system troubles. It also discusses the value and economy of regular service and attention to the cooling system.

"Both overheating and overcooling can waste gasoline and oil -- or even cause serious damage," the booklet explains. "That makes it doubly important that your cooling system be kept operating perfectly and in the correct temperature range at all times. Regular care and service will do it. Given proper care, the cooling system will give you trouble-free operation for years."

Du Pont Anti-Freeze Compounds Protect Cooling-System Parts

The booklet points out that all Du Pont anti-freeze compounds will protect the cooling-system parts against rust and corrosion. And, it adds: "They are highly effective both as anti-freeze and as cooling agents."

NOTE: Copy of booklet "Take Care of Your Cooling System" will be sent on request. Address "Zerone"-"Zerex" Section, Ammonia Department, Du Pont Company, Wilmington 98, Del.

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NEW DU PONT ROSE DUST FUNGICIDE COMBINES "FERMATE" AND SULFUR

A special fungicidal dusting compound to control foliage diseases of roses is being introduced by the Semesan Division of Du Pont's Grasselli Chemicals Department.

Containing sulfur and ferric dimethyl dithiocarbamate (constituent of "Fermate" fungicide), Du Pont Rose Dust should be applied as necessary to keep new foliage covered, particularly during rainy or foggy periods. It has proved especially effective against blackspot, powdery mildew, and rust. It is compatible with most insecticides, and is suitable also for carnations and snapdragons.

Can Be Used Either As A Dust or Spray

Du Pont Rose Dust can be used either as a dust or spray. A duster equipped with an angle nozzle or deflector to direct dust on both lower and upper surfaces of the leaves is recommended. Plants should not be "drowned" with dust.

As a spray, Du Pont Rose Dust is recommended at the rate of three tablespoonsful to one gallon.

Proper use of the compound is largely a matter of timing. No leaf burning has been encountered in tests except during hot weather. If burning occurs, gardeners are advised to change to straight "Fermate" and talc dust.

Cornell Reports Favorably on "Fermate" as Fungicide

In reporting on "The Latest Word on 'Fermate' for Blackspot and Rust Control" in a recent issue of the "American Rose Magazine," Dr. L. M. Massey, professor of plant pathology, Cornell University, says:

"It ('Fermate') is a generally good and satisfactory fungicide in that it protects against blackspot and rust when properly timed, and it can be mixed with sulfur to protect against powdery mildew. It is less injurious to the plants than most copper and sulfur fungicides. It can be safely mixed with most insecticides -- in fact it, by itself, is somewhat effective against the Japanese beetle, and it is relatively inexpensive. Further tests are needed to learn more about 'Fermate' and how best to use it. At this time 'Fermate' can be recommended for trial with no little enthusiasm. It is a material of demonstrated efficiency and one of sufficient promise to warrant extended use."

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KANSAS CITY STOCK YARDS INSTALL DDT-SPRAYING EQUIPMENT FOR CATTLE

Animals that go through the Kansas City stock yards, world's largest market for stocker and feeder cattle, can now be sprayed with DDT while in the yards, and returned to pastures or feed lots practically free of bothersome insects.

The Kansas City yards have installed a DDT-spraying service, optional to the owners of the cattle, at 15 cents a head, according to W. C. Rickel, in charge of the project. Equipment, along an enclosed chute that holds 30 steers or 60 calves, delivers the spray under 500 pounds pressure from 40 nozzles above and 40 nozzles below the cattle. In addition, a mobile unit with a portable sprayer, powered by a tractor, can be taken to any pen in the yards. Other important stock yards are also arranging similar services.

Cattle Free of Bothersome Insects Returned to Pastures and Feedlots

In a statement recently published in "Breeder's Gazette," Mr. Rickel offered this advice to stock growers in his area:

"For best results with DDT, cattle should be sprayed at least four times, starting in late spring and continuing through to the first killing frost. This spraying at the yards will last three weeks, and take the cattle back to your pastures and feedlots as clean, healthy, and unmolested by horn flies or lice as it is possible to make them." As frequently pointed out by Ray Cuff, regional manager, the National Livestock Loss Prevention Board, DDT treatment of cattle "will increase gains on pasture cattle and calves of from one-half pound to one pound per day during three months fly season."

Mr. Rickel's article pointed out that if clean, fly-free cattle gain one-half pound per day, "in 21 days that means 10½ pounds, worth $1.68 (at the market price at the time this statement was made), at a cost of 15 cents."

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DU PONT COMPANY MAINTAINS 33 LIBRARIES IN 12 STATES

Thirty-three libraries, containing 100,000 volumes, 50,000 pamphlets, and receiving 2,500 magazines weekly or monthly, are maintained by the Du Pont Company.

These libraries are located in 12 states, and help keep employees abreast in the technical developments and the general progress of industry throughout the world.

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Agricultural News Letter (Du Pont)
Vol. 14, No. 6 November-December, 1946

NEW P.M.U. COLLECTING BAG MADE OF NEOPRENE-COATED FABRIC

Buckets, barn-floor drains, and other old-fashioned methods of collecting urine from pregnant mares for recovery of estrogenic hormones are being replaced by a highly satisfactory bag of neoprene-coated fabric. Carefully purified estrogenic hormones have found increasing use during recent years in the field of medicine.

The new device, known as the P.M.U. collecting bag, is harnessed to and worn by the animal with no discomfort and with practically no loss of urine, of which the average mare produces about three gallons daily.

Heretofore, the urine has been collected by catching it in buckets, with loss of up to 25 per cent; by building the barn floor to drain to a sump, with most of the valuable substance of the liquid lost by settling out on the concrete; and by a device made from a rubber inner tube harnessed to the mare. About one-fourth of the urine was lost by the latter method due to the small size of the inner-tube opening. The inner tube would also harden and crack, never lasting more than one season. It irritated the animal, which managed to dislocate and often destroy it, sometimes within a week.

Has Numerous Advantages Over Old-Fashioned Methods

The new bag, which requires about one yard of fabric coated with Du Pont's neoprene synthetic rubber, collects nearly 100 per cent of the urine, is comfortable, and does not irritate. Even wild mares shipped from the West will wear it after a day or two of training. When the animal lies down, the bag swings easily out of the way. When she gets up again, it readily swings back into place.

The neoprene-coated fabric does not crack. Examination of those used one whole season indicates they should last at least two more.

Tests made by the laboratories from urine collected in these specially designed bags show no contamination or the presence of any extractables from the neoprene coating.

Prices for this special type of urine run as high as $1.80 per gallon in some areas. Annual future consumption of the new collecting bags is estimated at between 30,000 and 40,000. Applications for patents have been filed by the manufacturer, whose name will be sent on request.

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"ARASAN" SEED DISINFECTANT ALSO CONTROLS INSECTS IN STORED SEED

Research scientists have developed, after years of study, a superior chemical seed disinfectant which, without supplemental insecticides, also controls insects that attack the nation's food supply at its most vulnerable point, the seed in storage.

The discovery was first made by Du Pont laboratory technicians who exposed seeds treated with various fungicides -- including "Arasan" seed disinfectant -- to a varied collection of the most depredating storage insects, including bean weevil, rice weevil, confused flour beetle, cadelle beetle, and Mediterranean flour beetle.

The observations were made during experiments to determine that the "Arasan", containing tetramethyl thiuramdisulfide, retains its fungicidal powers for long periods.

To confirm early observations, bean, lima bean, wheat, rye, and corn seeds, on which these insects feed, were treated at the usually recommended dosages for seed disinfectants. From 10 to 25 insects were added to each lot of treated seed, as well as to comparable untreated seed.

Counts of Living and Dead Insects Reveal Effectiveness

Examinations and counts of living and dead insects at intervals disclosed that "Arasan" was the most generally effective treatment in checking the infestation.

"Insects used in the tests rarely succeeded in living more than a few days on the 'Arasan'-treated seed, and insect damage to the seed was negligible," according to Gilbert F. Miles, manager of the Du Pont Semesan Research Laboratory. "And, as expected, the insects devoured the edible portions of the untreated seeds."

Mr. Miles explained that the Japanese beetle provided the clue that led to the original work on insects in stored seed. He added:

"This agricultural marauder had betrayed a distaste for foliage coated with the chemical compound. So we were not surprised when we learned from an examination of treated and stored soybean seed that this new organic sulfur compound was exceptionally effective in protecting the seed against the attacks of the bean weevil."

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Tested by Large-Scale Users Under Actual Storage Conditions

Large-scale users of the product under actual storage conditions also began observations that led to the conclusion that "Arasan" by itself not only gives excellent protection against many seed-borne and soil-borne fungous diseases but also controls numerous insects on stored seed.

It not only kills the insects present, but repels outsiders, thus giving continuous protection. The fungicidal and insecticidal properties of "Arasan" do not deteriorate. This makes repeated treatments unnecessary. Tests show that the chemical is just as effective at repelling and killing insects after six months or a year as at the time of treatment.

No DDT Or Other Supplemental Insecticide Needed With "Arasan"

"Many questions have come to Du Pont plant pathologists and entomologists about the use of DDT insecticide with 'Arasan' for treating seed corn and other crop seeds," Mr. Miles added.

"Our laboratory observations and the experience of commercial seedmen with up to 20,000 bushels of seed corn do not show sufficient advantage at present to warrant adding supplemental insecticides, especially in view of the unknown hazards involved in the use of these insecticides on seed," Mr. Miles said.

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58 "LUCITE" PARTS ON NEW AUTOMOBILES

A recent survey conducted by the Du Pont Plastics Department discloses that "Lucite" acrylic resin is being used for 58 different parts on the new automobiles. Fifteen automotive manufacturers are using the plastic. More "Lucite" is going into horn buttons, dials and dial faces, and exterior light lenses, to name only a few of its applications, than ever before.

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